

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A procedure for activating a membrane-electrode assembly (MEA) of an electrochemical cell operating at substantially ambient conditions, said activation procedure including the steps of:

a) providing an electrochemical cell designed for operation at an ambient temperature and at substantially atmospheric pressure, said electrochemical cell comprising an MEA having a three-dimensional catalyst layer comprising a plurality of catalyst sites, a plurality of said catalyst sites being dead catalyst sites;

b) prior to operating said electrochemical cell, activating said electrochemical cell by exposing the MEA to temperatures higher than ambient temperature, and substantially simultaneously back-pressurizing gaseous reactants at a pressure above atmospheric pressure so as to activate a portion of said dead catalyst sites;

~~b~~ c) after the activation of the electrochemical cell, returning conditions of said electrochemical cell to ambient conditions; and

e d) operating said electrochemical cell at said ambient temperature and at substantially atmospheric pressure.

Claim 2 (withdrawn): An electrochemical cell operating according to the procedure of claim 1, comprising a proton-exchange membrane fuel cell.

Claim 3 (withdrawn): An electrochemical cell operating according to the procedure of claim 1, comprising a direct methanol fuel cell.

Claim 4 (withdrawn): The electrochemical cell operating according to claim 2, comprising at least one MEA composed of an ion-conducting membrane, and at least one catalyst layer bonded thereto.

Claim 5 (withdrawn): The electrochemical cell operating according to claim 2, comprising at least one MEA composed of an ion-conducting membrane, and two, spaced-apart catalyst layers, each being bonded on opposite sides of the membrane.

Claim 6 (withdrawn): The electrochemical cell operating according to claim 3, comprising at least one MEA composed of an ion-conducting membrane, and at least one catalyst layer bonded thereto.

Claim 7 (withdrawn): The electrochemical cell operating according to claim 3, comprising at least one MEA composed of an ion-conducting membrane, and two, spaced-apart catalyst layers, each being bonded on opposite sides of the membrane.

Claim 8 (withdrawn): An electrochemical cell operating according to the procedure of claim 1, comprising membrane materials selected from a group of materials consisting of: nonfluorinated ionomers partially fluorinated ionomers, perfluorinated ionomers, sulphonated polyetheretherketone, sulphonated polysulfone, sulphonated polyphosphazene, polystyrene sulphonic acid, and acid-doped polybenzimidazole.

Claim 9 (withdrawn): The electrochemical cell operating according to the procedure of claim 1, comprising a membrane containing organic or inorganic dopants.

Claim 10 (withdrawn): The electrochemical cell operating according to the procedure of claim 1, comprising a membrane containing organic or inorganic fillers.

Claim 11 (withdrawn): The electrochemical cell operating according to the procedure of claim 1, comprising membranes composed of mixed ionomers forming composite membranes.

Claim 12 (withdrawn): The electrochemical cell operating according to the procedure of claim 1, comprising a laminated membrane.

Claim 13 (withdrawn): The electrochemical cell operating according to the procedure of claim 1, comprising a membrane with a supporting template, whose pores are filled with at least one ionomer.

Claim 14 (original): The activation procedure according to claim 1, where catalysts, either unsupported or supported, are used to fabricate said MEA.

Claim 15 (original): The activation procedure according to claim 1, wherein the electrochemical cell operates at a temperature during activation that is higher than the temperature at which the electrochemical cell is intended to operate, but not too high that it can cause decomposition of the electrochemical cell materials or dehydration of the MEA.

Claim 16 (original): The activation procedure according to claim 1, where gaseous reactants are pressurized.

Claim 17 (original): The activation procedure according to claim 16, where gaseous reactants are pressurized to less than 5 atmospheres.

Claim 18 (original): The activation procedure according to claim 16, wherein a pressure difference between a cathode gaseous reactant and an anode gaseous reactant is less than 5 atmospheres.

Claim 19 (original): The activation procedure according to claim 1, where the activation procedure lasts more than approximately 5 minutes.

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Claim 20 (currently amended): The activation procedure according to claim 1, where the activation procedure further comprises the step of:

d e) monitoring said electrochemical cell during the activation.

21 (original): The activation procedure according to claim 1, where the humidification conditions of gaseous reactants are controlled.

22 (original): The activation procedure according to claim 1, where the electrochemical cell is operated between a changing load and a constant load.

23 (original): The activation procedure according to claim 1, where the electrodes contain various amounts of catalysts, ionomers, and/or water repelling agents.

24 (original): The activation procedure according to claim 1, where the MEA includes catalyst-coated membrane (CCM).